CLAIMS

What is claimed is:

1. A dual AC and DC input DC power supply, comprising:

a DC output stage that outputs a predetermined DC electrical power;

an AC input stage connected to the DC output stage, with the AC input stage configured to convert AC electrical power at the AC input stage into the predetermined DC electrical power available at the DC output stage; and

a DC input stage connected to the DC output stage, with the DC input stage configured to convert DC electrical power at the DC input stage into the predetermined DC electrical power available at the DC output stage.

2. The power supply of claim 1, wherein the DC electrical power at the DC input stage comprises a negatively-biased DC electrical power.

3. The power supply of claim 1, wherein the DC output stage comprises at least one capacitor across a DC positive output terminal and a DC ground output terminal.

4. The power supply of claim 1, wherein the DC input stage comprises a DC input stage disable line that disables outputting the predetermined DC electrical power from the DC input stage.

5. The power supply of claim 1, wherein the power supply further comprises an AC sense circuit that detects AC electrical power at the AC input stage and wherein the DC input stage comprises a DC input stage disable line connected to the AC sense circuit, and wherein the DC input stage disable line disables outputting the predetermined DC electrical power from the DC input stage when the AC sense circuit detects AC electrical power at the AC input stage.

6. The power supply of claim 1, wherein the power supply further comprises an AC sense circuit that detects AC electrical power at the AC input stage and wherein the DC input stage comprises a DC input stage disable line connected to the AC sense circuit, and wherein the power supply autonomously enables the DC input

stage when the AC sense circuit detects an absence of AC electrical power at the AC input stage.

7. The power supply of claim 1, with the DC input stage comprising:

a switching circuit that receives the DC electrical power and that is configured to generate a substantially AC waveform at a first AC voltage level from the DC electrical power;

a transformer connected to the switching circuit and configured to convert the substantially AC waveform at the first AC voltage level to a second AC voltage level; and

a full-wave rectifier connected to the transformer and configured to convert the substantially AC waveform at the second AC voltage level to the predetermined DC electrical power.

8. The power supply of claim 1, with the DC input stage comprising:

a switching stage that receives the DC electrical power and that is configured to generate a substantially AC waveform at a first AC voltage level from the DC electrical power;

a buffer stage connected to the switching circuit and configured to provide electrical current to the substantially AC waveform;

a transformer connected to the buffer stage and configured to convert the substantially AC waveform at the first AC voltage level to a second AC voltage level; and

a full-wave rectifier connected to the transformer and configured to convert the substantially AC waveform at the second AC voltage level to the predetermined DC electrical power.

9. The power supply of claim 8, wherein the buffer stage comprises field-effect transistors (FETs) connected in an H-bridge configuration.

10. A dual AC and DC input DC power supply, comprising:

a DC output stage that outputs a predetermined positively-biased DC electrical power;

an AC input stage connected to the DC output stage, with the AC input stage configured to convert AC electrical power at the AC input stage into the predetermined positively-biased DC electrical power available at the DC output stage; and

a negative DC input stage connected to the DC output stage, with the negative DC input stage configured to convert negatively-biased DC electrical power at the negative DC input stage into the predetermined positively-biased DC electrical power available at the DC output stage.

11. The power supply of claim 10, wherein the DC output stage comprises at least one capacitor across a DC positive output terminal and a DC ground output terminal.

12. The power supply of claim 10, wherein the DC input stage comprises a DC input stage disable line that disables outputting the predetermined positively-biased DC electrical power from the DC input stage.

13. The power supply of claim 10, wherein the power supply further comprises an AC sense circuit that detects AC electrical power at the AC input stage and wherein the DC input stage comprises a DC input stage disable line connected to the AC sense circuit, wherein the DC input stage disable line disables outputting the predetermined positively-biased DC electrical power from the DC input stage when the AC sense circuit detects AC electrical power at the AC input stage.

14. The power supply of claim 10, wherein the power supply further comprises an AC sense circuit that detects AC electrical power at the AC input stage and wherein the DC input stage comprises a DC input stage disable line connected to the AC sense circuit, and wherein the power supply autonomously enables the DC input stage when the AC sense circuit detects an absence of AC electrical power at the AC input stage.

15. The power supply of claim 10, with the DC input stage comprising:

a switching circuit that receives the negatively-biased DC electrical power and that is configured to generate a substantially AC waveform at a first AC voltage level from the negatively-biased DC electrical power;

a transformer connected to the switching circuit and configured to convert the substantially AC waveform at the first AC voltage level to a second AC voltage level; and

a full-wave rectifier connected to the transformer and configured to convert the substantially AC waveform at the second AC voltage level to the predetermined positively-biased DC electrical power.

16. The power supply of claim 10, with the DC input stage comprising:

a switching stage that receives the negatively-biased DC electrical power and that is configured to generate a substantially AC waveform at a first AC voltage level from the negatively-biased DC electrical power;

a buffer stage connected to the switching circuit and configured to provide electrical current to the substantially AC waveform;

a transformer connected to the buffer stage and configured to convert the substantially AC waveform at the first AC voltage level to a second AC voltage level; and

a full-wave rectifier connected to the transformer and configured to convert the substantially AC waveform at the second AC voltage level to the predetermined positively-biased DC electrical power.

17. The power supply of claim 16, wherein the buffer stage comprises field-effect transistors (FETs) connected in an H-bridge configuration.

18. A method of providing a predetermined DC electrical power in a dual AC and DC input DC power supply, the method comprising:

receiving an AC electrical power in an AC input stage;

converting the AC electrical power into the predetermined DC electrical power;

receiving a DC electrical power in a DC input stage;

converting the DC electrical power into a substantially AC waveform of a first AC voltage level;

transforming the substantially AC waveform to a second AC voltage level; and

rectifying the substantially AC waveform into the predetermined DC electrical power.

19. The method of claim 20, with the receiving the DC electrical power comprising receiving a negatively-biased DC electrical power and with the rectifying comprising rectifying the substantially AC waveform into a predetermined positively-biased DC electrical power.